REMARKS

Entry of the amendments to the specification and claims, as amended by way of Annexes to the International Preliminary Examination Report for PCT/EP99/06591, before examination of the application in the U.S. National Phase is respectfully requested.

If there are any questions regarding this Preliminary Amendment or this application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #225/49845).

Respectfully submitted,

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ABSTRACT OF THE DISCLOSURE

In a method and apparatus for detecting small periodic wave patterns in technical surfaces using the scattered-light method, the surface is illuminated using a primary light beam and the secondary light returned by the surface is analyzed. For this purpose, monochromatic, coherent primary light is directed onto the workpiece surface approximately at right angles to the expected periodic wave patterns - grazing the workpiece surface. A diffraction image of the waved surface structure, whose intensity distribution can be evaluated visually or by use of measuring instruments, is produced in the secondary-light beam. The occurrence of two intensity maxima immediately indicates the presence of a periodic wave pattern. The period of the wave pattern can be deduced through inverse proportionality from the spacing of neighboring intensity maxima, and the depth of the wave troughs between the wave crests can be deduced from the intensity of neighboring intensity maxima and from the period. The intensity distribution in the diffraction image in the secondary-beam path is subjected to an autocorrelation, and both the period and the depth of the wave pattern can be calculated from the autocorrelation function. When the meter is placed properly on the workpiece, the primary-light beam strikes the workpiece surface at an angle of incidence of preferably about 83±2 degrees, the beam path being folded in a space-saving way.